

ON A NEW CRAB FROM CADAQUÉS ON THE NORTH EAST COAST OF SPAIN

(*Sirpus zariquieyi* n. g. and. sp.)

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In September 1947 I received from Dr. Ricardo Zariquiey Alvarez of Barcelona two tiny specimens of what appeared to be a species of Spider Crab from Cadaqués. Although the specimens were minute it was obvious that both were females but I did not observe at that time that the larger one has the genital openings perforate and filled with what appear to be fertilization plugs. Later Dr. Zariquiey sent me a somewhat larger ovigerous female and two males, and recently, at my request, Dr. Boschma of the Leiden Museum sent me on loan a male specimen from the same locality.

I have been much puzzled by this species of Brachyuran; it resembles the Oxyrhyncha in certain respects and yet I am convinced that it does not belong to that subtribe. No Oxyrhynchous crab has the median frontal spine so well formed that the front is trispinose; when present the median spine or rostrum is minute and much more ventral in position than the well-formed rostral horns (e. g. in *Maia* or in *Mithrax*). Moreover in the Oxyrhyncha it is unusual for the anterolateral and posterolateral borders of the carapace to be clearly separated, and segments 2 + 3 of the antennal peduncle usually forms a larger part of the lower orbital border. The general form of the carapace of the ovigerous female (Fig. 1) is distinctly Cancroid (in the wide sense employed by Rathbun, 1930), apart from the front the median spine of which slopes obliquely downwards and so lies in a different plane from the other two. I have consulted

Dr. H. Balss late of the Munich Museum and Dr. Th. Monod of Dakar and both agree that the crab is not an Oxyrhynch but a member of the Cancroid assemblage in the wide sense referred to above. The small size of the species would explain why it has been overlooked for so long. It would appear to belong to a new genus and to reach sexual maturity at an unusually early age. According to Lewis and Short, «A Latin Dictionary», Oxford, 1917, *scirpus*, sometimes *sirpus*, has two meanings; in its original one of a *rush* or *bulrush* it has been used in botanical nomenclature; since it appears to have another meaning by transference «deriving the idea of intricacy from plaited work of rushes. a *riddle*, *enigma*» I propose to use it in that sense. As *Scirpus* is a large and well known genus of plants, I prefer to use the less usual spelling although it is most unlikely that bulrushes and marine crabs will ever appear in the same work. Gender masculine.

Genus *Sirpus* nov.

DIAGNOSIS.—Carapace hexagonal, moderately convex, areolate. Front rather narrow, trispinose, the spines diverging from a common base (in lateral aspect). Orbits wide, transverse, shallow and rather incomplete posteroventrally. Of the four anterolateral spines the third is the shortest. Antennal flagellum long and setose. Chelipeds equal. Walking legs with low ridge(s) on dorsal margin of carpus and propodus, dactyli not laterally compressed but longitudinally ridged. All seven abdominal somites free in female; three to five coalesced in male. Male openings coxal.

The affinities of the genus appear to be with *Trachycarcinus* and with *Pirimela*, probably with the latter as will appear later (see p. 313).

The type species is *Sirpus zariquieyi* n. sp. and the holotype will be deposited in the collection of the British Museum by kind permission of Dr. Zariquiey who first discovered it. Recently Dr. Monod has sent me three specimens of minute size, belonging to the same genus, from West Africa. The type species is described rather briefly below; a fuller description with more figures and a more critical discussion of the affinities of the genus, together with a description of the West African species (which appears to be a different one) will appear elsewhere in due course.

Sirpus zariquieyi n. sp.

DIAGNOSIS.—As for the genus. Carapace of male narrower than in the ovigerous female (c. f. Fig. 1 and Fig. 2).

MATERIAL.—From Dr. Zariquiey: *a*). Two small females collected at Cadaqués, N. E. Spain in the summer of 1947. *b*). One ovigerous female, the holotype, and two small male specimens from Cadaqués, viii/51.

From the Leiden Museum: *c*). One small male, «Omgeving Cadaqués, aangebracht door Kustvissors, 4-16 Augustus 1949. L. B. Holthuis.»

DESCRIPTION OF THE HOLOTYPE.—This specimen, the largest at my disposal, measures 5.0 by 7.1 mm (across the last pair of anterolateral spines).

The shape of the *carapace* is represented in dorsal aspect in Fig. 1. The front comprises three subequal spines; the median one, or rostrum, is directed obliquely downwards while the lateral ones are directed forwards and are slightly upturned apically. The orbits are wide, the distance between the postocular (first pair of anterolateral) spines is nearly three-fourths of the maximum carapace width. Each orbit is well formed anteriorly but is shallow and incomplete posteriorly so that the eye is protected only by the postocular spine. The anterior dorsal and ventral orbital angles are each produced to form a short triangular spine (Fig. 1, 1 and 2 respectively). The dorsal orbital margin slopes obliquely backwards and outwards to meet the base of a wide triangular spine intercalated between it and the postocular spine. Behind the orbit, the anterolateral border comprises three large spinose projections, the anterior of which is the largest. The posterolateral margins are slightly concave and convergent; the posterior margin bears a high submarginal crest and is only slightly wider than the front.

The dorsal surface of the carapace is distinctly areolated as represented in Fig. 1 and the apex of each lobe is beset with granules. There are two proto- and one meso-gastric lobes, the latter followed by a cardiac and a small intestinal lobe. On either side of the cardiac lobe is a dark reniform depression. The branchial region bears a median lobe (slightly behind and external

to the mesogastric lobe), a triangular lobule near the base of the last anterolateral spine, and two spinules and some rugosities near the posterolateral margin. A number of distally plumose

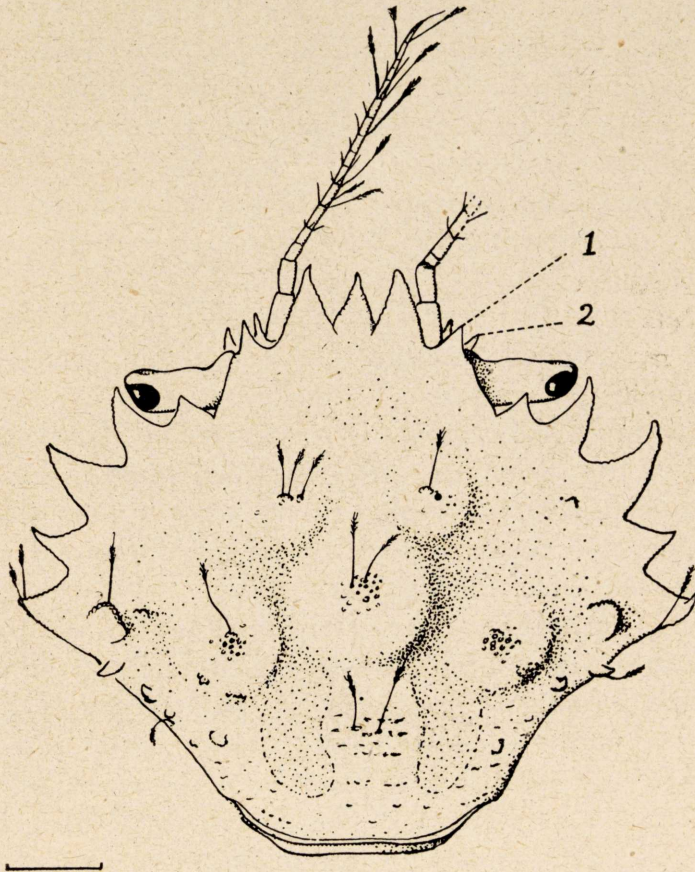


Fig. 1.—*Sirpus zariquieyi* n. g. and sp. Carapace of holotype, an ovigerous female, in dorsal aspect. The scale = 1 mm.
1, Supraorbital spine. 2, Infraorbital spine.

setae are present as shown in the figure, but others have been rubbed off.

The *antennae* are long and setose; the outer distal angle of the principal segment (2 + 3) of the peduncle ends in a spine; segment 4 is rather longer than 5. The flagellum comprises some 14-15 segments, some of which bear long distally plumose setae.

The *eyestalk* is much swollen basally, subcylindrical in the distal two-thirds and the cornea is terminal.

The *chelipeds* are equal, the left chela and carpus is represented in Fig. 4 B. As the carapace of the female is wider

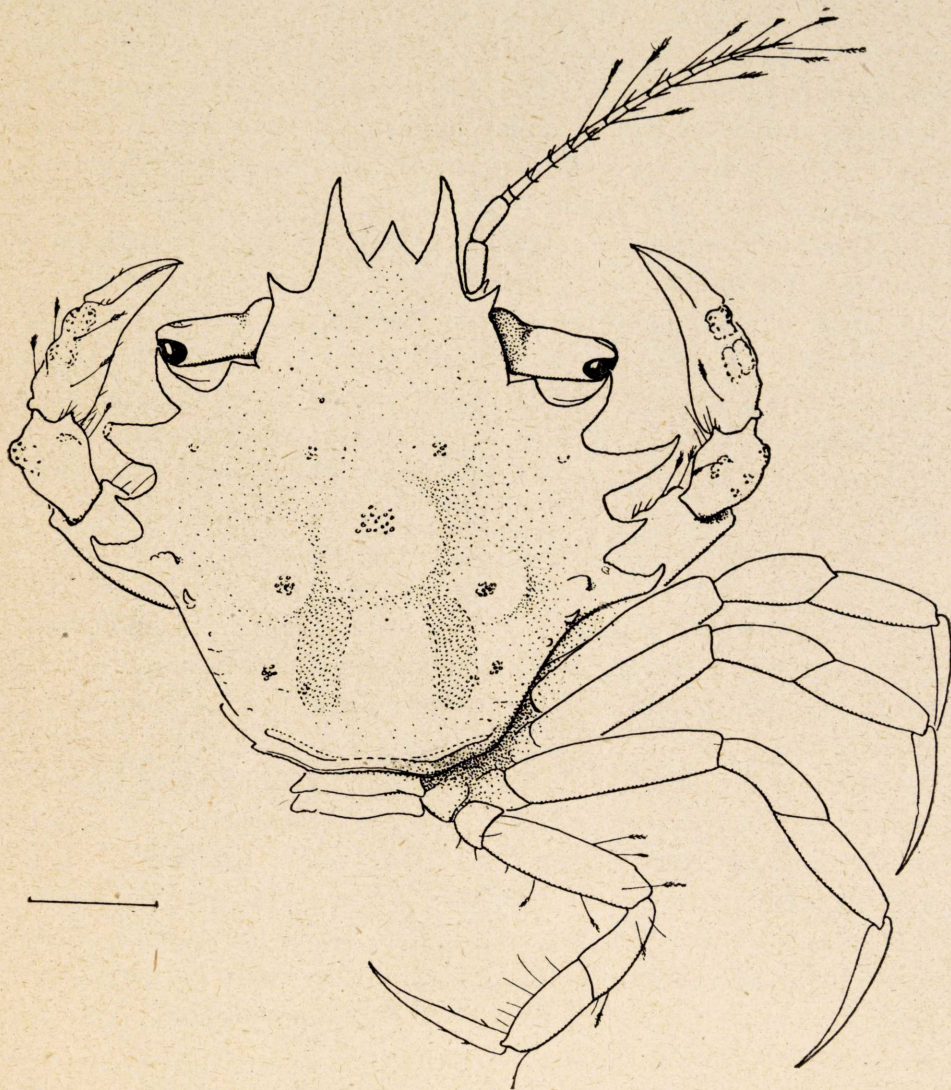


Fig. 2.—*Sirpus zariquieyi* n. g. and sp. A male paratype, in dorsal aspect, left antenna and pereopods II-V omitted. The scale = 1 mm.

than that of the male, the merus of the cheliped is just visible dorsally between the anterolateral spines (it reaches the apex of the penultimate one, c. f. Fig. 2). The spine on the inner margin of the carpus is much longer than in the male; on the anterior

margin a blunt lobule articulates with a similar one on the chela; the distal half of the outer margin is lobulate and beset with granules. The fingers of the chela are rather longer than the dorsal margin of the palm; each bears a median ridge, the cutting edges are in close contact distally leaving a slight gap proximally (when closed). The dorsal margin of the palm bears a distal and a median granular lobule and two similar lobules occur a short distance from the actual margin. Below these is a median series of low granular clusters.

The *walking legs* or pereopods II-V are for the most part bent inwards round the egg mass so they are omitted from Fig. 1. The first pair are about as long as the chelipeds. The merus of pereopod V is about two and a half times as long as wide, the carpus bears a low dorsal ridge. The propodus, which is as long as the carpus, has two parallel dorsal ridges; the dactylus is half as long again as the propodus and bears longitudinal ridges but is *not* flattened.

The *antennules* are enclosed in deeper rather better developed sockets than in the male (Fig. 3) and the crest on the anterior margin of the basal segment of the peduncle is more pronounced. They fold obliquely rather than longitudinally. The longitudinal furrow on the ischium of the third maxilliped is more pronounced than in the male.

All seven somites of the *abdomen* are free. Somites 3-7 of the larger female paratype from Lot *a* are represented in Fig. 4 C in dorsal aspect and as folded naturally under the thorax. The first segment is very short and bears a transverse granular ridge, the next three are progressively longer while the last three are of almost equal length, the terminal one being narrowly triangular with a rounded apex. At its widest the abdomen scarcely exceeds the posterior margin of the carapace.

The *ova* are numerous and measure approximately 0.25 to 0.30 mm. in diameter.

REMARKS.—The larger female from Lot *a* measures 4.85 by 5.52 mm. and is very similar to the holotype. It also appears to be sexually mature for the genital openings are distinct and filled with dark brown fertilization plugs. The clusters of granules on the dorsal surface of the carapace are more pronounced and from them arise groups of distally plumose setae. The swollen

basal part of the eyestalk is closely beset with granules and is separated by a distinct depression from the distal portion. The smaller female paratype measures 4.0 by 4.8 mm. and is sexually immature; it also is markedly granulose and the eyestalk has a depression distal to the bulbous base.

The *male* paratype from Lot *b* represented in Fig. 2 measures

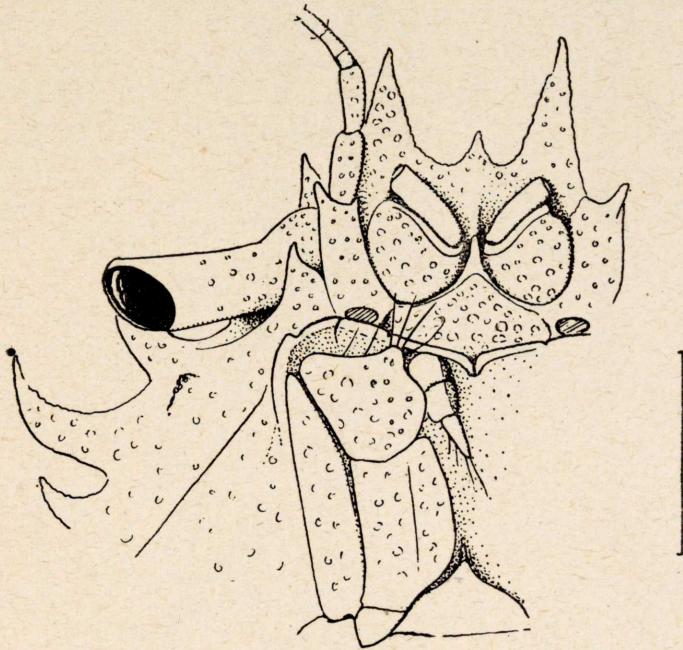


Fig. 3.—*Sirpus zariquieyi* n. g. and sp. Portion of carapace of a male paratype, in ventral aspect, to show details of orbit, front, buccal cavity, epistome, etc. The scale = 1 mm.

4.60 by 4.72 mm. The areolation and granulation of the carapace are less pronounced than in the females. The lateral frontal spines are appreciably longer than the median one. Since the carapace extends but little beyond the orbits the fronto-orbital width is relatively greater than in the female. The third antero-lateral spine (counting the postocular as the first) is the smallest, the second the largest. The chelipeds are equal, the merus extends some distance beyond the anterolateral spines, the spine on the inner margin of the carpus is small, the two pairs of granulose lobules on the dorsal margin of the palm tend to merge. The walking legs are more slender than in the female; the merus

of pereopod V is rather more than three times as long as wide, and the ridges on carpus, propodus and dactylus are less distinct. The details of orbit, epistome, buccal cavity, etc., are represented in Fig. 3. The distal portion of the abdomen is represented in

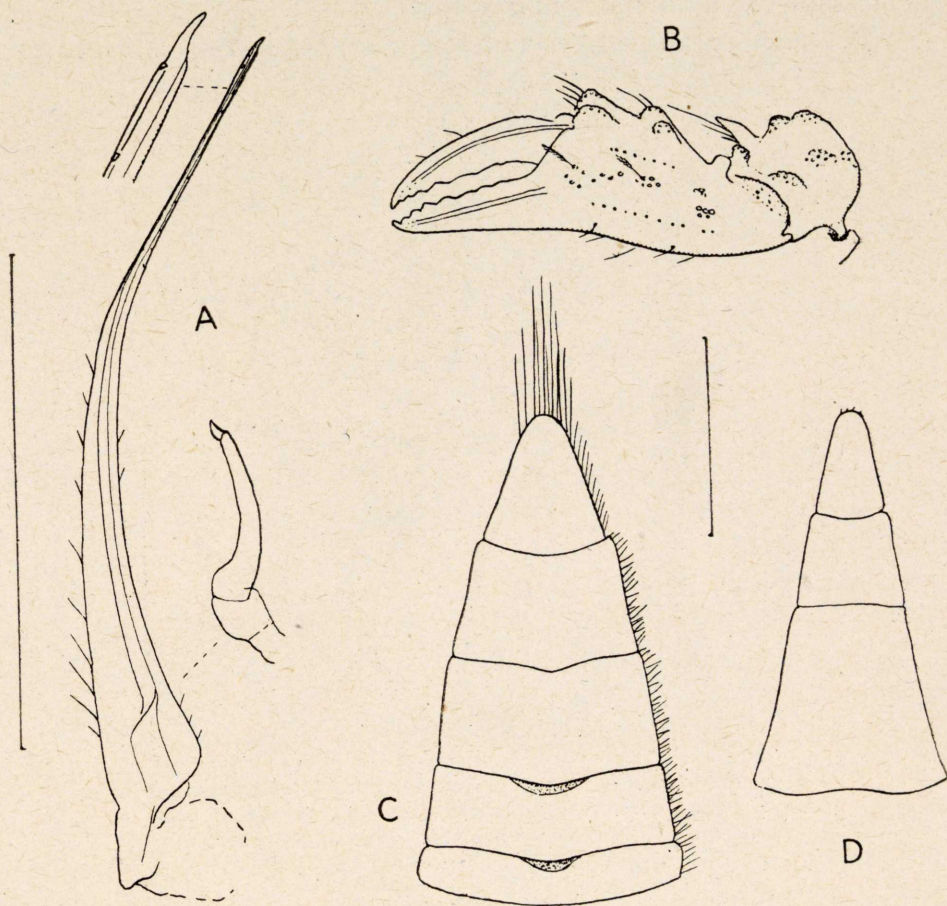


Fig. 4.—*Sirpus zariquieyi* n. g. and sp. A. First and second pleopods of a male paratype. B. Left chela and carpus of the holotype. C. Distal comites (3 to 7) of abdomen of the larger female paratype. D. Somites 3 to 7 of a male paratype. The scale in each case = 1 mm.

Fig. 4 D, namely, the fused somites 3-5 and somites 6 and 7, the latter slightly the longer. The first pleopod is a long slender appendage reaching almost to the apex of the abdomen; pleopod 2 is only about one-fourth of the length of the other (Fig. 4 A).

The specimen received on loan from the Leiden Museum is also a male measuring only 3.42 by 3.58 mm. yet the first

pleopod is already well formed and nearly as long as the abdomen. It differs from the paratype represented in Fig. 2 chiefly in that the fourth anterolateral spine and the intercalated spine of the orbit are each only incipient. The separation of the basal and distal parts of the eyestalk is also marked by a depression similar to that in the female paratypes. The well developed pleopods of these minute males suggest that they are sexually mature.

SYSTEMATIC POSITION OF THE GENUS.—When Dr. Zariquiey first sent me the two small females comprising Lot *a* he referred to them in his letter dated 16/IX/47 as «dos Maiidae formas juveniles de sp. ?» On examining them my first impression was that they might be the young of *Pirimela denticulata* (Montagu) but this proved not to be so and I also was inclined to regard them as young stages of a species of Spider Crab. Now that more specimens are available and I have examined them more carefully they prove not to belong to the large subtribe Oxyrhyncha. Dr. Balss, who has done so much to elucidate the classification of the Oxyrhyncha and to whom I sent sketches, thinks they may be a primitive Portunid related to *Carcinides maenas* (L.). Dr. Monod, to whom I also sent some sketches, writes «ne devrait-on pas chercher du côté des Atelecyclidés, aux alentours de *Trachycarcinus* par exemple ?» All three of us are therefore agreed that the genus belongs to the Cancroid or Cyclometopus Crabs (Rathbun, 1930). I shall discuss this question in more detail at a later date. Meantime I shall only give a brief outline of my findings.

Bouvier, 1942, separated the crabs of «la tribu des *Corystoidea*» from the rest of the Brachyrhyncha; to his *Corystoidea* he referred the families Euryalidae (*Corystidae restr.*), Atelecyclidae and Cancridae of Rathbun and others and arranged the genera in five families (see pp. 47 to 48). I had observed the rather striking similarity between *Sirpus zariquieyi*, the male especially, and *Trachycarcinus corallinus* Faxon for example and had compared it with the material available in the British Museum Collection. Of the genus *Trachycarcinus* we have only one male of *T. glaucus* Alc. & And. and one male of *T. balssi* Rathbun received from Sakai. *Sirpus* agrees with the definition of *Trachycarcinus* given by Rathbun 1930, p. 164 as regards the orbits which are «large, with forward aspect, imperfect» but

it differs in many other respects. 1). While the front is three spined, the spines do not lie in one plane as they do in *Trachycarcinus*. 2). The anterior margin of the buccal cavity is very distinctly defined and the ridges of the endostome are less

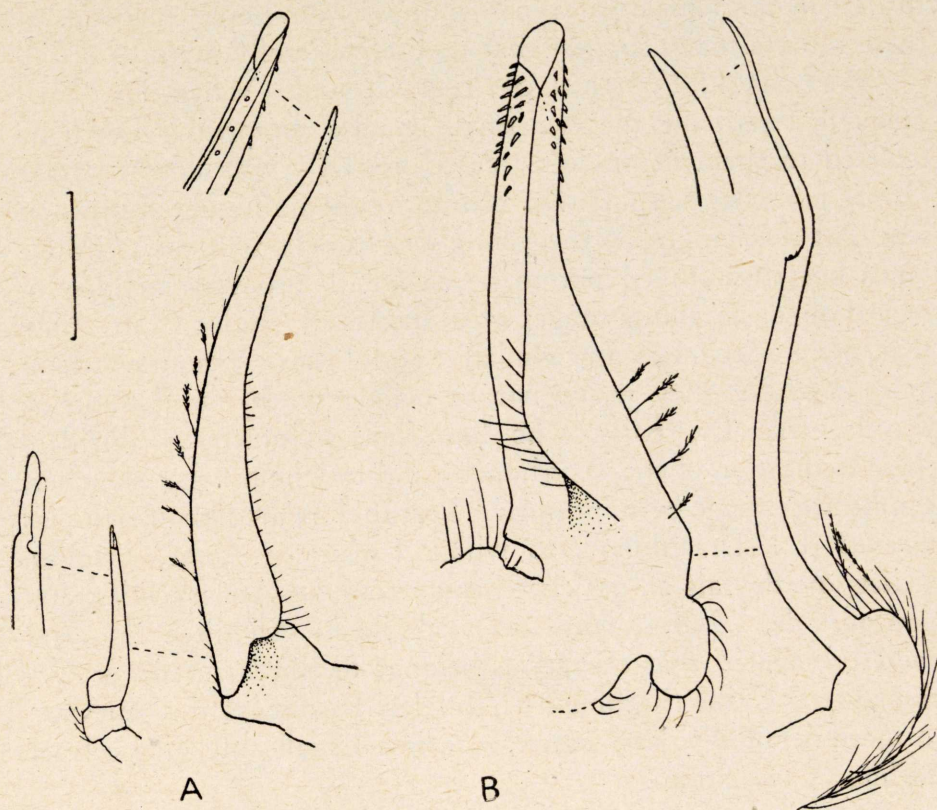


Fig. 5.—First and second pleopods of male. A. *Pirimela denticulata* (Montagu). B. *Trachycarcinus glaucus* Alc. & And. The scale = 1 mm.

distinct than in *T. balssi* for example. 3.) The eyestalks are retractile within the orbits but they are not «very small» nor are the «eyes dull and faintly pigmented». 4.) The carapace is not pentagonal with long, nearly straight, anterolateral margins, but is hexagonal in the male and more ovoid in the ovigerous female. 5.) The antennules do not fold longitudinally or lengthwise as in the Atelecyclidae but obliquely (Fig. 3). 6.) On examining the pleopods of the male I find that in the two *Trachycarcinus* species available the second is longer than the first

with the distal third in the form of a lash (Fig. 5 B), not short as in *Sirpus* (Fig. 4 A). *Sirpus* is nearer to *Pirimela* Leach as regards the anterior margin of the buccal cavity; the well pigmented eyes; the form and lobulation of the carapace of the ovigerous female; the form of the abdomen and pleopods of the male (c. f. Figs. 4 A and 5 A); the manner in which the antennules are folded. The incomplete and wider orbits of *Sirpus zariquieyi* would not necessarily exclude it from the genus *Pirimela* - indeed the two European species of the genus *Portunus* differ from each other in this respect, the orbits being narrow and complete in *P. biguttatus* Riso wide and incomplete in *P. latipes* (Pennant). However, it differs sufficiently from *Pirimela* as regards the form of the front, the number and nature of the anterolateral spines, the form of the carapace in the male, the more setose antennae, and in not having a «lobe portunien» on the endopodite of the first maxilliped (see Bouvier, 1942, p. 32, fig. 15), to justify the erection of a new genus for its reception.

What is the systematic position of *Pirimela*? Pesta (1918, pp. 386-7) places it with *Cancer* and *Carcinides* in the Cancridae. Most authors refer *Carcinides* to the Portunidae. Lebour (1944, p. 15) says «As far as we know from its larval stages *Pirimela* is probably related to *Portunus* and *Cancer*, perhaps more nearly to *Cancer*». Bouvier (1942, pp. 47-8) includes the Cancridae and the Pirimelidae, each monotypic, in his Corys-toidea. The classification of the Brachyura is in need of thorough revision. Meantime I am inclined to place *Sirpus* near to *Pirimela* rather than in the Atelecyclidae.

ACKNOWLEDGMENTS.—I wish to thank Dr. Zariquiey for sending me these very interesting specimens and for patiently waiting until I could decide what to do with them; Dr. H. Boschma, Director of the Leiden Museum, for the loan of their specimen, and my colleague Mr. A. C. Townsend for assistance in finding a name for the genus. I am also grateful to Dr. H. Balss and to Dr. Th. Monod for giving me their views on the relationship of the genus.

SUMARIO

En este breve artículo se describe una nueva especie de crustáceo (*Crustacea*, *Brachyura*), capturado cerca de Cadaqués por el doctor Ricardo Zariquiey. Los ejemplares son de un tamaño muy pequeño, midiendo, los más grandes, de 5-7 milímetros, por lo que tardaron tanto tiempo en ser descubiertos. Algunos estaban sexualmente maduros, y el holotipo lleva un grupo de huevos en desarrollo. Esta nueva especie se dedica al doctor Zariquiey y se atribuye a un nuevo género *Sirpus*, que ofrece algunas afinidades con el género *Trachycarcinus* Faxon, de la familia *Atelecyclidae*, aunque parece más próximamente relacionado con *Pirimela* Leach, de la familia *Pirimelidae*.

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